

A Practical Method of Obtaining Blood from Anesthetized Turtles by Means of Cardiac Puncture

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(Text-figure 1)

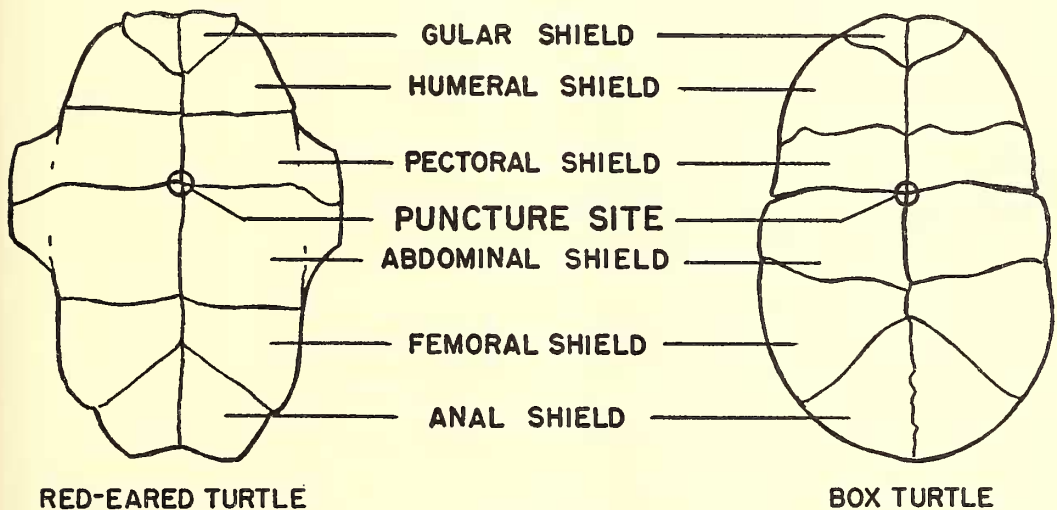
A successful technique for withdrawing blood from turtles under nembutal (a 6% solution of pentobarbital sodium "Abbott") anesthesia has been developed in the Animal Hospital of the New York Zoological Park. Species to which the technique has been applied are the box turtle, *Terrapene c. carolina*, and the red-eared turtle, *Pseudemys scripta elegans*, but it is believed that this method is applicable to many other species.

PROCEDURE

Each turtle was weighed and given a subcutaneous injection of nembutal at the rate of 0.1 grain per 240 grams of body weight (see Table 1). In order to avoid any possible slough-

ing (which may occur at the site of a subcutaneous injection of nembutal), sterile distilled water was added to the prescribed dosage to make 1 cc. of total injected fluid. None of the turtles showed any signs of sloughing afterward. Satisfactory anesthesia was attained in approximately 45 minutes and recovery was uneventful with no fatalities.

Withdrawal was effected by a 1.5-inch 18-gauge needle attached to a 5 or 10 cc. lock-tip syringe. The subject was held in dorsal recumbency and the puncture area was thoroughly cleaned with alcohol. The needle was then inserted through the plastron on the midline at the junction of the pectoral and abdominal shields (Text-fig. 1), with a gentle rotating



TEXT-FIG. 1. Plastron diagram of box turtle, *Terrapene c. carolina*, and red-eared turtle, *Pseudemys scripta elegans*, showing puncture sites.

TABLE 1. WEIGHT, ANESTHESIA AND WITHDRAWAL OF BLOOD FROM TURTLES

| Subjects | Weight range (grams) | Nembutal dose range (grains) @ 0.1 grain per 240 grams | Minimum & maximum amount of blood withdrawn (cc.) | Average amount of blood withdrawn (cc.) |
|---------------------|----------------------|--|---|---|
| 22 Box turtles | 359-800 | 0.15-0.33 | 0.5-6.5 | 3.2 |
| 5 Red-eared turtles | 516-1745 | 0.22-0.73 | 2.0-14.0 | 7.6 |

motion. A fair amount of downward pressure must be applied to make the puncture, and the necessary rotating motion makes it important to use a lock-tip type of syringe. The point of entry corresponds to the osseous as well as the dermal sutures and therefore passage of the needle into the body cavity is facilitated.

The needle used for perforating the plastron frequently became plugged. Routinely it was replaced with a new needle of the same size to effect the actual cardiac puncture. (If available a similarly sized stillette may be substituted for the first needle.)

The needle was inserted postero-dorsal at an angle of about 20 degrees from the vertical, and pierced the cardiac ventricle when it was

inserted half an inch to an inch. Gentle suction was then applied.

Blood cannot be withdrawn continuously, but comes in spurts every 5 to 8 seconds, as would be expected in view of the functioning of the reptilian heart. Withdrawal pressure should not be applied during the intervening "heart filling" phase.

After two or three withdrawals at 5- to 8-second intervals, a clot may occlude the lumen of the needle. If this happens, the needle may be withdrawn and a new one inserted in the same aperture.

SUMMARY

A practical method of cardiac puncture in turtles anesthetized with nembutal is described.